REMARKS

Claims 1-6 are all the claims pending in the application. Of these claims, claims 1, 3, and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Casiraghi (U.S. patent No. 6,278,825 B1). Finally, claims 2, 4 and 5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Casiraghi in view of Rogestedt (WO 97-03124 A1). For the following reasons, Applicants respectfully traverse these rejections.

Claim 1 has been amended by incorporating the property of the insulative layer (25) showing improved resistance to breakdown upon application of an electrical field. Antecedent basis for this can be found in paragraphs [0029), and [0036] to [0044] of the published application US 2004/0179795 A1. In addition, new claims 11-13 have been added.

Summary of the present invention

With reference to Fig. 1 the present application describes an optical fibre cable (21), comprising at least one central strength member (22) surrounded by optical fibres (23), an electrical conductor (24) and an insulative layer (25), wherein the insulative layer (25) comprises mainly a mixture of polymers comprising a high density polymer, the low density polymer having a lower viscosity than the high density polymer. In a preferred embodiment the insulative layer (25) may further be covered by an armor layer (26) and an external protection coating (27).

The advantage of using such a mixture for the insulative layer, is that the risk for breakdown, when the material is subjected to an electrical field, significantly improves. This advantage has been shown in Fig. 5.

More specifically, Fig. 5 shows the breakdown probability of a test sample of a material when an electrical field is applied. The results are presented in the well known Weibull format. From the graph it is clear that a polymer mixture according to the present invention shows improved breakdown performance over a reference material. An explanation of this unexpected advantage has been described in paragraph [0045].

The cable (21) described in the present application thus comprises both optical fibres (23) and an electrical conductor (24). In a long-haul optical fibre telecommunication cable, the intensity of the light transported by the fibre is progressively attenuated and must therefore be amplified regularly. This amplification is effected by optical modules and necessitates the supply of electrical energy to power the laser diodes. In long-haul submarine cables electrical power and telecommunication signals are transported in the same cable. The present application is directed to such long-haul submarine applications.

Claim rejections

Casiraghi teaches an optical fibre cable (Fig. 1) comprising an optical core (1), an inner sheath (2) made of polymer material (LDPE filled with carbon black), an armor layer (3) and an outer sheath (4). Outer sheath(4) comprises a first inner layer (4a) substantially devoid of tracking resistance and a second outer layer (4b) having high tracking resistance. The tracking resistance property as explained in column 2 lines 57-65 and column 3 lines 1-7 is comparable with the resistance to breakdown upon electrical fields as is described in the present application.

The optical cable by Casiraghi is a light optical cable, with good mechanical resistance, particularly suitable for installation along high-voltage lines (column 2, lines 43-45).

According to the Examiner, Casiraghi teaches the use of a conductor layer surrounding at least one optical fibre, said at least one optical fibre surrounding at least one central strength member and a layer of insulative composition surrounding said conductor. Applicants respectfully submit that this is an incorrect interpretation of Casiraghi.

Casiraghi clearly teaches (column 3, line 44) at least one high voltage conductor **"associated with"** an optical fibre cable. In this respect the word **"associated"** should be understood as a combined system for the transport of high voltage electrical energy and optical communications by disposing the optical fibre cable overhead in **the proximity** of the conductor (see column 3, lines 44-45).

Examples of such constructions are also provided by Casiraghi in column 3, lines 48-55, and claims 24 and 25. The optical cable may be self-supporting, being provided with tensile stress resistant elements, or the optical cable may be wound on or suspended from a (purposely disposed) carrying rope.

The disclosure of Casiraghi thus clearly teaches that the optical fibre cable and the high voltage conductor **are two different entities.** In other words, the high voltage conductor according to Casiraghi is not an integral part of the optical cable, let alone that the conductor **surrounds at least one optical fibre** said at least one optical fibre surrounding at least one central strength member and a layer of insulative composition surrounding said conductor, as recited in claim 1. Indeed, if it was intended that the high voltage conductor in Casiraghi surrounded the optical fibers 7, Fig. 1 in Casiraghi would have illustrated the conductor; but it doesn't!!

Therefore claim 1 and consequently all dependent claims 3, 6, 7 are novel over Casiraghi.

The Examiner further rejects claims 2, 4 and 5 under 35 U.S.C. 103(a) as being unpatentable over Casiraghi in view of the WIPO Patent Publication of Rogestedt (W09703124A1). Applicants respectfully traverse the Examiner's rejection.

The present application reports on Rogestedt in paragraph [0011].

Rogestedt teaches (page 2, lines 8-16) a multimodal olefin polymer mixture comprising a first polymer (a) having a high density (0.930 - 0.975 g/cm^3) and high Melt Flow Rate (50-2000 g/10min) and a second polymer (b) having a low density (0.88 - 0.93 g/cm^3) and a low Melt Flow Rate (0,1 - 0.8 g/10min).

In the light of the present application, Rogestedt thus teaches a polymer mixture comprising a first polymer having high-density and low viscosity (corresponding to a high melt flow rate) and a second polymer having low density and high viscosity (corresponding to a low melt flow rate).

Rogestedt clearly teaches away from the composition of the present insulative layer. This means that Rogestedt is completely silent about a mixture of polymers comprising a high density polymer and a tow density polymer, the low density polymer having a lower viscosity than the high density polymer, let alone that such a mixture would show an improved resistance to breakdown upon application of an electrical field.

Hence, even if Casiraghi was combined with Rogestedt, the person skilled in the art would not arrive at the wording of present claims 2, 4 and 5.

The amended set of claims is believed to be both new and non-obvious in view of the prior art presented by the Examiner. The arguments above clearly support this statement. Further, it is submitted that the prior art does not teach or suggest the features recited in new claims 11-13.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.116
Serial No.: 10/796,126
SUGHRUE MION, PLLC Ref: Q80242

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

Brian W. Hannon
Registration No. 32,778

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

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23373
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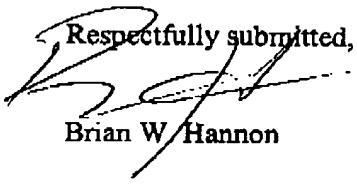
CERTIFICATION OF FACSIMILE TRANSMISSION

Sir:

I hereby certify that the above identified correspondence is being facsimile transmitted to Examiner Hoang Q. Tran at the Patent and Trademark Office on March 27, 2006 at (571) 273-8300.

Respectfully submitted,



Brian W. Hannon